



U.S. Department of Energy
Office of River Protection

P.O. Box 450
Richland, Washington 99352

02-OSR-0427

Mr. R. F. Naventi, Project Manager
Bechtel National, Inc.
3000 George Washington Way
Richland, Washington 99352

Dear Mr. Naventi:

CONTRACT NO. DE-AC27-01RV14136 - CONDITIONAL APPROVAL OF BECHTEL NATIONAL, INC. (BNI) AUTHORIZATION BASIS CHANGE NOTICE (ABCN) 24590-WTP-ABCN-ESH-01-020, REV. 1

Reference: BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Transmitted for Approval: Contract Deliverable 'Revised Standards Approval Package – Update' and Revision 1 to Associated Authorization Basis Change Notices in support of the 'SRD Standards Approval Package Submittal'," CCN 028977, dated March 22, 2002.

The U.S. Department of Energy, Office of River Protection (ORP) has reviewed ABCN 24590-WTP-ABCN-ESH-01-020, Rev. 1, submitted in the Reference. The proposed changes consist of the following:

For Safety Criteria (SC) 7.2-1 through 7.2-4, and SC 7.3-3, ABCN 24590-WTP-ABCN-ESH-01-020, Rev. 1, proposes to replace references to Sections 1.3.12, 3.15, 4.2.2, 5.6.2, and 8.0 of the ISMP as implementing standards for Training and Qualification with a reference to Attachment 2 to DOE 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities* as tailored in Safety Requirements Document (SRD) Volume II, Appendix C. For SC 7.2-5 through 7.2-8, the ABCN also proposes to replace references to Sections 3.4, 5.2, 5.3, 5.6.1, and 5.6.6 of the Integrated Safety Management Plan as implementing standards for procedures with a reference to DOE 5480.19, *Conduct of Operations Requirements for DOE Facilities* as tailored in SRD Volume II, Appendix C. SC 7.2-8 also includes the tailored DOE 5480.20A and DOE G 433.1-1 as implementing standards. In addition, a change to the wording and intent of SC 7.2-7 involving the frequency of review, update and certification of procedures, including Emergency Plan Implementing Procedures, is proposed. Based upon the ORP's evaluation of the proposed changes and responses to questions, except for two conditions, the ORP found the proposed changes identified in the above ABCN acceptable.

The two conditions are: (1) the Contractor implements the commitment to revise the Conduct of Operations Plan; and (2) the Contractor implements the commitment to revise the Maintenance Implementation Plan. Conditional acceptance is based on wording changes committed to in the responses to questions.

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The ORP concluded that with the wording changes, there is reasonable assurance that the health and safety of the public and the workers, and the environment will not be adversely affected and they comply with applicable laws, regulations, and River Protection Project Waste Treatment Plant contractual requirements. Attached is the Safety Evaluation Report for the proposed changes.

As part of the amendment implementation process, please submit within 14 days of receipt of this letter the revised pages of the SRD, identifying all revisions to date. This amendment is effective immediately and shall be fully implemented within 30 days; i.e., the provisions of the amendment may be used immediately, and controlled copies of the SRD and subordinate documents must be modified to reflect the changes associated with this amendment.

If you have any questions, please contact me, or your staff may call Neal Hunemuller, Office of Safety Regulation, (509) 376-6727.

Sincerely,

OSR:NKH

Roy J. Schepens
Manager

Attachment

**Safety Evaluation Report
of Proposed Authorization Basis Change Notice (ABCN)
ABCN-24590-01-020, Rev. 1
to the Safety Requirements Document (SRD) and the
Integrated Safety Management Plan (ISMP)
for the River Protection Project-Waste Treatment Plant (RPP-WTP)**

1.0 INTRODUCTION

The RPP-WTP authorization basis is the composite of information provided by a Contractor in response to radiological, nuclear, and process safety requirements that is the basis on which the Office of River Protection (ORP) grants permission to perform regulated activities. The authorization basis includes that information requested by the Contractor for inclusion in the authorization basis and subsequently accepted by the ORP. The authorization basis for the RPP-WTP includes the SRD and the ISMP. The SRD contains the approved set of radiological, nuclear and process safety standards and requirements which, if implemented, provide adequate protection of workers, the public, and the environment against the hazards associated with the operation of the facility. The ISMP defines a set of integrated activities that is directed toward the management or control of radiological, nuclear, and process hazards such that adequate protection is provided to workers, the public, and the environment. By letter dated March 22, 2002,¹ Bechtel National, Inc., (the Contractor) submitted a proposed amendment to the SRD and ISMP. This Safety Evaluation Report (SER) documents the ORP evaluation of the changes proposed by the Contractor in the areas of Training and Procedures.

The amendment proposes the following changes to the SRD and ISMP:

For SRD Safety Criteria (SC) 7.2-1 through 7.2-4, and SC 7.3-3, replace references to Sections 1.3.12, 3.15, 4.2.2, 5.6.2, and 8.0 of the ISMP as implementing standards for Training and Qualification with a reference to Attachment 2 to DOE 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities* as tailored in SRD Volume II, Appendix C.

For SRD SC 7.2-5 through 7.2-8, replace references to Sections 3.4, 5.2, 5.3, 5.6.1, and 5.6.6 of the ISMP as implementing standards for Procedures with a reference to DOE 5480.19, *Conduct of Operations Requirements for DOE Facilities* as tailored in SRD Volume II, Appendix C. In addition, a change to the wording and intent of SC 7.2-7 involving the frequency of review, update and certification of procedures, including Emergency Plan Implementing Procedures (EPIP), is also proposed.

¹ BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Contract No. DE-AC27-01RV14136 – Transmitted for Approval: Contract Deliverable 'Revised Standards Approval Package Update' and Revision 1 to Associated Authorization Basis Change Notices in Support of the 'SRD Standards Approval Package Submittal,'" CCN 028977, dated March 22, 2002.

2.0 BACKGROUND

The ISMP and SRD describe the process for identifying hazards, developing control strategies, and selecting standards for the waste treatment plant. Section 7.2 of the SRD requires that programs be established and implemented for continual training and qualifications of selected personnel that are based on a systems approach to training. Initial and refresher training that emphasizes specific topics/subjects is required for personnel involved in operating a process. Up-to-date training records are required to be maintained. SC 7.3-3 of the SRD requires personnel to be trained to ensure their capability to perform assigned work, and continuing training must be provided to maintain job proficiency.

Section 7.2 of the SRD requires that written procedures that at least address specified elements be developed for safely conducting activities. In particular, operating procedures must be readily available to persons operating or maintaining a process with radioactive or hazardous materials, and these procedures must be periodically reviewed to assure their currency and accuracy. Safe work practices must also be provided for control of hazards during operations, and these must apply to employees and subcontractors, alike.

The current implementing codes and standards for the SRD requirements in SC 7.2-1 through 7.2-4 and 7.3-3 are contained in 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*, Sections 1.3.12, *Training*; 3.15, *Training and Qualification*; 4.2.2, *Training and Procedures*; 5.6.2, *Development of the Operator Training Program*; and 8.0, *Document Control and Maintenance*. The proposed amendment would replace these ISMP standards with the requirements of Attachment 2 to DOE 5480.20A. This Order is a well-proven and established standard used at Hanford and throughout the DOE complex for training and qualification of operating personnel.

The current implementing codes and standards for the SRD requirements in SC 7.2-5 through 7.2-8 are contained in 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*, Sections 3.4, *Safety/Quality Culture*; 5.2, *Control of Subcontractors*; 5.3, *Configuration Management*; 5.6.1, *Procedure Development*; and 5.6.6, *Hot Work Operations*. The proposed amendment would replace these ISMP standards with the requirements of DOE 5480.19. This Order is also a well-proven and established standard used at Hanford and throughout the DOE complex for conduct of operations, including training and qualification of operating personnel and development and implementation of procedures in support of operations.

The two cited DOE Orders contain similar and more detailed guidance than the referenced sections of the ISMP such that there would be no reduction in effectiveness if they were used. The Contractor, therefore, requests approval to use these Orders as implementing standards for the cited SRD SC.

For the most part, the proposed amendment would only change the implementing codes and standards. However, the Contractor also proposes a change to the wording and intent of SC 7.2-7. This change would: (1) require that only EIPs be reviewed annually; (2) replace "certification" of procedures with "reviews;" and (3) tailor the periodicity of procedure reviews based on factors presented in the subject implementing standard. The Contractor notes that the

proposed change to SC 7.2-7 is a reduction in commitment, and provides an evaluation to justify the change.

3.0 EVALUATION

- 3.1** Proposed "Tailoring" of DOE 5480.20A: The Contractor proposes to tailor DOE 5480.20A in SRD Volume II, Appendix C, by deleting references to DOE Orders or Standards that are not imposed on the RPP-WTP by DOE or committed to by the Contractor in an authorization basis (AB) document. Tailoring has also been performed to delete information concerning requirements pertaining to other types of nuclear facilities that clearly do not apply to the RPP-WTP.

Evaluation (acceptable): The tailoring of DOE 5480.20A consists of: (1) deleting references to DOE orders and other standards that are not imposed on the RPP-WTP or committed to by the Contractor in an AB document; (2) adding standards that are imposed on the RPP-WTP or committed to by the Contractor in an AB document; and (3) deleting information concerning requirements that are relevant to specific types of nuclear facilities that does not apply to the RPP-WTP. The tailoring has minimal impact on the fundamental requirements of the Order relative to its use as an implementing standard for SRD SC related to training and qualification of personnel. Therefore, tailoring of DOE 5480.20A for application to SRD SC 7.2-1 through 7.2-4 and 7.3-3 is acceptable.

- 3.2** Proposed change to SRD SC 7.2-1: Replace the ISMP with the tailored DOE 5480.20A as an implementing standard for providing programs for continual training and qualification for operations, maintenance, and technical support personnel to enable them to perform their duties safely and efficiently.

Evaluation (acceptable): The proposed revision is acceptable because the information in DOE 5480.20A is similar to and more detailed than that in the replaced ISMP standards, and adequately addresses SC 7.2-1. Chapter 1 of the Order requires that initial and continuous training programs be established to ensure operating organization personnel are qualified to perform their job requirements. The Order cites operating, maintenance, and technical support staff as requiring training and qualification, both initial and continuing. The Order requires a training organization be established to develop and implement the training program for training and qualifying operating organization personnel. The Order states that, "a graded approach shall be used to establish the systematic approach to training for operations personnel, maintenance personnel, technicians, and the technical staff." The Order further states that the details and formality of the training programs should be commensurate with the facility hazard and the nuclear safety-related risk to the workers, public, and environment. As the Contractor's ABCN evaluation states, this is in effect tailoring of the training and qualification program for the facility requirements. The proposed change is not a reduction in effectiveness or commitment.

3.3 Proposed change to SRD SC 7.2-2: Replace the ISMP with the tailored DOE 5480.20A as an implementing standard for establishing, implementing, and maintaining a training program for individuals relied upon to operate, maintain, or modify the facility in a safe manner. The training program shall be based on a systems approach to training that includes:

- (a) Systematic analysis of the jobs to be performed;
- (b) Learning objectives derived from the analysis which describe desired performance after training;
- (c) Training design and implementation based on the learning objectives;
- (d) Evaluation of training mastery of the objectives during training; and
- (e) Evaluation and revision of the training based on the performance of trained personnel in the job setting.

Evaluation (acceptable): The Order describes the training process and requires that both initial and continuing training programs be established to ensure that operating organization personnel are qualified to perform job requirements, and this shall be achieved using a systematic approach to training that includes the exact elements required by SC 7.2-2. The Order further describes implementation details for each of the subject elements. The proposed change is not a reduction in effectiveness or commitment.

3.4 Proposed change to SRD SC 7.2-3: Replace the ISMP with the tailored DOE 5480.20A for training each employee involved in operating a process in an overview of the process and in operating procedures/instructions. Training shall include emphasis on specific safety and health hazards, operating limits, emergency operations including shutdown, and safe work practices applicable to employees' job tasks. The SC specifies requirements and the periodicity for refresher training.

Evaluation (acceptable): The Order specifies the content for both initial and refresher training programs for operating organization personnel, which includes employees involved in operating a process. The initial training program is established in consideration of specific position needs using the systematic approach to training. Although the Order does not specify the subject matter covered in initial operator training, the elements specified for refresher training cover the required subjects of SC 7.2-3, as well as additional topics. Thus, by inference, the Order is adequate in its coverage of the SC relative to the scope of initial operator training.

Continuing (e.g., refresher) training for operating organization personnel is required by the Order to be performed at least every two years, which is conservative relative to the three-year period stated in the SC. This training covers subjects where examination and experience or other evidence indicates additional emphasis in scope and depth of coverage is needed. The subjects required to be covered by the Order include procedures to be followed in abnormal and emergency situations, and are to be covered in classroom

instruction and training within the facility. The proposed change is not a reduction in effectiveness or commitment.

- 3.5** Proposed change to SRD SC 7.2-4: Replace the ISMP with the tailored DOE 5480.20A as an implementing standard to maintain up-to-date records of training status that provide specific information down to the level of individual trainees.

Evaluation (acceptable): DOE 5480.20A requires the Contractor to develop and implement administrative procedures that specify requirements for maintenance of training, qualification, and certification records for operating organization personnel. The Order specifies a list of items that individual record documentation shall include, and this contains the items required by the SC, as well as additional information. Management and control of the training records is to be performed to the requirements of American Society of Mechanical Engineers NQA-1-1989. The Order requires that historical records, as well as records that demonstrate current training and qualification status of individuals, be maintained under the program. The proposed change is not a reduction in effectiveness or commitment.

- 3.6** Proposed change to SRD SC 7.2-5: Replace the ISMP with the tailored DOE 5480.19² as an implementing standard to develop and implement written procedures/instructions that provide clear direction for safely conducting activities involving radioactive or hazardous materials for each phase of the facility life that address at least the following elements:

- Steps for each operating phase:
 - Initial startup
 - Normal operations
 - Temporary operations
 - Emergency shutdown including the conditions under which emergency shutdown is required, and the assignment of shutdown responsibility to qualified operators to ensure that emergency shutdown is executed in a safe and timely manner
 - Emergency operations
 - Normal shutdown
 - Startup following a turnaround, or after an emergency shutdown.
- Operating limits:

² The tailoring of DOE 5480.19 was previously approved in an ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Approval of Bechtel National, Inc. (BNI) Authorization Basis Change Notices 24590-WTP-ABCN-ESH-01-005, Rev. 1, and 245890-WTP-ABCN-ESH-01-006, Rev. 1," 02-OSR-0374, dated August 15, 2002.

- Consequences of deviation
- Steps required to correct or avoid deviation.
- Safety and health considerations:
 - Properties of, and hazards presented by, the chemicals used in the process
 - Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment
 - Control measures to be taken if physical contact or airborne exposure occurs
 - Quality control for raw materials and control of hazardous chemical inventory levels
 - Any special or unique hazards.
- Safety systems and their functions

Evaluation (conditionally acceptable): The proposed implementing standard, DOE 5480.19, does not specifically require the Contractor to develop and implement procedures and instructions covering the specific elements required by the SC. This was the subject of ORP's question ABCN-ESH-01-020-03.³ In its response,⁴ the Contractor committed to add to Chapter 16 of its Conduct of Operations (CONOPS) Plan, 24590-WTP-PL-OP-01-002, an additional criterion, 16.2.11. This will state, "Procedures will address the following elements: (1) steps for each operational phase of the process/system, (2) operating limits, (3) safety and health considerations, and (4) safety systems and their functions." The CONOPS Plan is part of the AB under the Preliminary Safety Analysis Report (PSAR), and as such, must be used by the Contractor to develop and implement its operating program, including operating procedures. ORP concludes the Contractor's proposed implementing standard is acceptable to meet SC 7.5-2, on the condition that it implements the commitment to revise the CONOPS Plan pursuant to its response to ORP question ABCN-ESH-01-020-03. The proposed change does not represent a reduction in effectiveness or commitment.

- 3.7** Proposed change to SRD SC 7.2-6: Replace the ISMP with the tailored DOE 5480.19 as an implementing standard to provide ready accessibility of operating procedures to employees who work in or maintain a process with radioactive or hazardous materials.

³ ORP letter from R.C. Barr to R.F. Naventi, BNI, "Office of Safety Regulation (OSR) Questions on Low Activity Waste Construction Authorization Request and Related Submittals," 02-OSR-0109, dated March 14, 2002.

⁴ BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Closeout Comments on Low Activity Waste Construction Authorization Requests," CCN 038774, dated September 4, 2002.

Evaluation (acceptable): DOE 5480.19 requires controlled copies of all operations procedures be maintained in the control area for operator reference and selected controlled procedures be maintained at other appropriate locations, including those used for remote shutdown. The Order also requires working copies of procedures be controlled and verified correct and current prior to and periodically during use. The proposed change does not represent a reduction in effectiveness or commitment.

- 3.8** Proposed change to SRD SC 7.2-7: The change involves revision of the wording and intent of the SC, as well as a change to the implementing standard for the SC. The change in the SC, itself, would: (1) require that only EIPs be reviewed annually; (2) replace "certification" of procedures with "reviews;" and (3) tailor the periodicity of procedure reviews based on factors presented in the subject implementing standard. The Contractor notes that the proposed change to SC 7.2-7 is a reduction in commitment, and provides an evaluation to justify the change. The change to the implementing standard replaces the ISMP with DOE 5480.19 to periodically review operating procedures to assure they reflect current operating practice and be certified annually as accurate and correct.

Evaluation (acceptable): Neither the Top-Level Safety Standards,⁵ applicable laws and regulations, nor the proposed implementing standard require "certification" of procedures. Therefore, the proposed change to replace the "certification" activity with that of "review" is acceptable. Furthermore, none of the aforementioned documents define a required periodicity at which procedures must be reviewed for technical accuracy. Retention of an annual periodicity for review for technical accuracy of the EIPs is appropriate, given their importance to assuring the safety of the facility in the event of an emergency or accident. Tailoring of the periodicity for reviewing other operating procedures for technical accuracy is acceptable and consistent with the proposed implementing standard. Although revision of SC 7.2-7 for the above items is a reduction in commitment, the proposed SC provides adequate safety and complies with applicable laws and regulations, as well as top-level safety standards. The proposed revision to SC 7.2-7 does not represent a reduction in effectiveness.

DOE 5480.19 requires initial and periodic reviews of procedures prior to their issuance. The Order supports the approach ascribed to by the Contractor in that it states that the frequency of such reviews may vary with the type and complexity of the activity involved and with time as a given plant reaches operational maturity. ORP's question ABCN-ESH-01-020-05⁶ requested clarification of the criteria by which the Contractor would make decisions about the periodicity of procedural reviews. In its response,⁷ the Contractor stated the RPP-WTP CONOPS Manual, Procedure for Technical Procedures, will specify the frequency of periodic reviews, which will be determined through application of criteria that will consider: (1) frequency of use; (2) consequences of error; (3) commitments or requirements contained within the procedure; (4) complexity; and (5) the maximum of time allowed between reviews based on procedure type. Use of the

⁵ DOE/RL-96-0006, *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor*, Rev. 2, U.S. Department of Energy, Office of River Protection, 2001.

⁶ Ibid 3.

⁷ Ibid 4.

proposed implementing standard to meet revised SC 7.2-7 is acceptable, and does not represent a reduction in commitment or effectiveness.

- 3.9** Proposed change to SRD SC 7.2-8: Replace the ISMP with the tailored DOE 5480.19 as an implementing standard to develop safe work practices for control of hazards during operations, such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a facility by maintenance, subcontractor, laboratory, or other support personnel. The safe work practices must apply to employees and subcontractors, alike. Also, add the tailored DOE 5480.20A and DOE G 433.1-1 as implementing standards.

Evaluation (conditionally acceptable): DOE 5480.19 addresses most, but not all, of the requirements of SC 7.2-8. ORP, in question ABCN-ESH-01-020-01⁸ noted this and requested clarification from the Contractor as to where or how the implementing standard addresses development of safe work practices for confined space entry, control of cleanliness when opening systems/equipment, and control of entrance to the facility (not just the "control area").

In this question, ORP requested the Contractor to explain its basis for taking credit for DOE 5480.20A against SC 7.2-8 in its evaluation of the adequacy of the proposed implementing standard DOE 5480.19 when DOE 5480.20A was not listed as an implementing standard against the subject SC. In its response,⁹ the Contractor noted that DOE 5480.20A is applicable to SC 7.2-8 in that by meeting certain qualification requirements stipulated by the Order, certain safe work practices would be reinforced through the training process. As a result, the Contractor committed to including the tailored DOE 5480.20A as an additional implementing standard for SC 7.2-8.

Relative to assuring that safe work practices for control of opening process equipment or piping are established through the implementing standard, the Contractor committed to include DOE G 433.1-1 as an implementing standard for SC 7.2-8. The Order provides requirements that the Contractor intends to follow relative to controlling cleanliness of equipment and process systems when opening them. In addition, the Contractor committed to add a new criterion to its Maintenance Implementation Plan that states, "Maintenance work activities will be performed using practices to ensure 'Foreign Material Exclusion' when opening certain systems or components."

Relative to control of entrance to the facility, the Contractor in its response noted that physical security of the RPP-WTP, which includes access control, would be in accordance with SRD SC 4.1-6, which states, "Adequate provisions for facility security and physical protection of SSC's Important to Safety shall be provided."

ORP concludes the Contractor's proposed implementing standard for SC 7.2-8, as committed to in its ABCN submittal, is acceptable on the condition that it implements the

⁸Ibid 3.

⁹ Ibid 4.

commitments in its response to ORP question ABCN-ESH-01-020-01. The proposed change does not represent a reduction in effectiveness or commitment.

- 3.10** Proposed change to SRD SC 7.3-3: Replace the ISMP with the tailored DOE 5480.20A as an implementing standard to train and qualify personnel to ensure they are capable of performing their assigned work, and that they are provided with continuing training to maintain job proficiency.

Evaluation (acceptable): The Order stipulates requirements for the training and qualification of operating organization personnel (operating, maintenance, and technical support personnel), as well as general employees, and covers conditions under which employees are permanent or temporary. In all cases, the Order requires that personnel be trained and qualified commensurate with their job duties. The Order requires continuing training for operating organization personnel, and this training is to include training in topical areas pertaining to General Employee Training. Use of the proposed implementing standard is acceptable, and does not represent a reduction in commitment or effectiveness.

4.0 CONCLUSION

On the basis of the considerations described above, ORP has concluded there is reasonable assurance that the health and safety of the public and the workers will not be adversely affected by the proposed changes. The proposed changes to the SRD do not constitute a reduction in commitment or effectiveness relative to training and procedures. Accordingly, the proposed changes are acceptable and ORP approves the amendments as proposed in ABCN 24590-WTP-ABCN-ESH-01-020, Rev. 1, with the conditions stipulated in Sections 3.6, and 3.9, and repeated below:

At the next revision after approval of the PSAR for Construction Authorization:

1. Add to Chapter 16 of the CONOPS Plan, 24590-WTP-PL-OP-01-002, an additional criterion, 16.2.11, that states, "Procedures will address the following elements: (1) steps for each operational phase of the process/system; (2) operating limits; (3) safety and health considerations; and (4) safety systems and their functions" (see Section 3.6).
2. Add a new criterion to the Maintenance Implementation Plan that states, "Maintenance work activities will be performed using practices to ensure 'Foreign Material Exclusion' when opening certain systems or components" (see Section 3.9).